# Index

**Volume 47, 1991**

**Main Articles**


Interrelationships of egg size, chick size, post hatching growth and hatchability
*H. R. Wilson* 5

Guinea fowl *(Numida meleagris)* as a protein supplement in Nigeria
*K. L. Ayorinde* 21

Training and education in poultry science in England and Wales (Short reviews)

Trends in training provision
*H. G. Hall* 28

Business/technology courses in poultry production at Harper Adams College
*R. G. Wells* 30

Business/technology courses in poultry production at Lincolnshire College
*P. Sharman* 33

Education and industry needs
*S. G. Tullett* 37

Application of system ideas in food processing technology education
*S. A. Hands* 39

Graduate demand and supply
*K. N. Boorman* 41

Future of poultry science research
*G. C. Perry* 43

Welfare of laying hens in cages and alternative systems
*M. C. Appleby and B. O. Hughes* 109

Attenuated *Salmonella* as live vaccines: prospects for multivalent poultry vaccines
*H. G. Griffin* 129

Egg white lysozyme as a food preservative: an overview
*F. E. Cunningham, V. A. Proctor and S. J. Goetsch* 141

Feed efficiency changes accompanying selection for body weight in chickens and quail
*H. L. Marks* 197

Feed resources for poultry production in Asia and the Pacific region.
I. Energy sources
*V. Ravindran and R. Blair* 213

Anti-nutritive activities of cereal non-starch polysaccharides in broiler diets and strategies minimizing their effects
*G. Annison and M. Choct* 232

Mathematical models in broiler raising
*J. Zoons, J. Buyse and E. Decuypere* 243


**Summaries**


French 46, 164, 256
German 49, 166, 259
Spanish 51, 167, 259
Russian 54, 169, 262

**Book Reviews** 56, 171, 263

**Recent Publications** 172, 272

**Research News** 173, 273

**WPSA General Information** 60, 175, 274


**Association News**


Association Treasurer – A. Wade Brant 63
Erratum to Treasurer's Report 178

# Index

**Volume 47, 1991**

**Main Articles**


Interrelationships of egg size, chick size, post hatching growth and hatchability
*H. R. Wilson* 5

Guinea fowl *(Numida meleagris)* as a protein supplement in Nigeria
*K. L. Ayorinde* 21

Training and education in poultry science in England and Wales (Short reviews)

Trends in training provision
*H. G. Hall* 28

Business/technology courses in poultry production at Harper Adams College
*R. G. Wells* 30

Business/technology courses in poultry production at Lincolnshire College
*P. Sharman* 33

Education and industry needs
*S. G. Tullett* 37

Application of system ideas in food processing technology education
*S. A. Hands* 39

Graduate demand and supply
*K. N. Boorman* 41

Future of poultry science research
*G. C. Perry* 43

Welfare of laying hens in cages and alternative systems
*M. C. Appleby and B. O. Hughes* 109

Attenuated *Salmonella* as live vaccines: prospects for multivalent poultry vaccines
*H. G. Griffin* 129

Egg white lysozyme as a food preservative: an overview
*F. E. Cunningham, V. A. Proctor and S. J. Goetsch* 141

Feed efficiency changes accompanying selection for body weight in chickens and quail
*H. L. Marks* 197

Feed resources for poultry production in Asia and the Pacific region.
I. Energy sources
*V. Ravindran and R. Blair* 213

Anti-nutritive activities of cereal non-starch polysaccharides in broiler diets and strategies minimizing their effects
*G. Annison and M. Choct* 232

Mathematical models in broiler raising
*J. Zoons, J. Buyse and E. Decuypere* 243


**Summaries**


French 46, 164, 256
German 49, 166, 259
Spanish 51, 167, 259
Russian 54, 169, 262

**Book Reviews** 56, 171, 263

**Recent Publications** 172, 272

**Research News** 173, 273

**WPSA General Information** 60, 175, 274


**Association News**


Association Treasurer – A. Wade Brant 63
Erratum to Treasurer's Report 178

Report of 1990 Executive Committee Meeting 179
Increase in 1992 Membership Dues 276
XIX World's Poultry Congress 277
Secretary's Report for 1990 278
Treasurer's Report for 1990 280
Editor's Report for 1990 283

**Branch News**

Australian Branch 64
Czechoslovak Branch 65
French Branch 64
German Branch 184
Israel Branch 182
Polish Branch 183

**Federation News**

Report of 1990 Executive Committee Meeting of European Federation 185

**Obituaries**

Daniel Reginald Jones 66
Irmgard Gylstorff 67
Noel Milne 188

**Calendar** 69, 189, 284

**World's Poultry Science Journal: Subject Index 1966–1990** 72

**Index erratum** 283